Tuesday, June 30, 1936

10:30 o'clock a. m.

Court convened pursuant to adjournment.

PRESENT: Messrs. Threedy
Parker

LESLIE M. HANSEN

resumed the stand for further cross-examination by Mr. Parker.

Q Referring to Defendants' Exhibit D, am I correct in saying that when it is recorded against the cell 62 current from the amplifier flows through the coil of the relay 79?

A Yes, that is correct.

Q When current from the amplifier does flow through that coil, does the bell 83 ring?

A No. When current flows through that coil an armature of that relay 79 pulls up and closes the relay switch to complete the circuit from the 110 volt source of supply to the bell and then the bell rings.

Q Can you answer that question yes or no, please?

MR. THREEDY: I think, if the Court please, he has answered the question. I do not believe that is fair to the witness.

THE COURT: I do not know whether he can answer it yes or no. He is an expert.

MR. PARKER: The question did not call for the intermediate agents. It is simply a question of whether or not when current flows through the coil 79 from the amplifier the bell rings.

A The ultimate result is a ringing of the bell.

Q When current from the amplifier flows through the coil 79 of the relay shown in Defendants' Exhibit D, please answer yes or no, does or does not the target portion shown in front of the cell 62 move into lowered position?

A The target is urged into a drop position or lowered position; yes.

Q Then it moves into a lowered position?

A Yes.

Q Assume that in the wiring diagram of Defendants' Exhibit D the movement of the relay controlled by a coil shown at 79 is prevented or does not take place in response to the flow of current from the amplifier, are any means shown in this wiring diagram or in the patent in suit, if you wish to refer to it, for sounding the bell 83 or operating the electromagnet 69?

A Means for sounding the bell, did you say?

MR. PARKER: Read the question, please.

(The question was read)

A The means for sounding the bell is the 110-volt current.

Q Will you please answer my question?

A Of course, the 110-volt current is controlled by the relay 79 and therefore the bell could not ring unless the relay 79 is closed.

Q Then am I correct in my statement that unless the relay 79 is closed by the flow of current from the amplifier the signal means or the bell or the electromagnet controlling the target portion or drop will not be actuated?

A That is right.

Q And they cannot be actuated unless current from the amplifier flows through the coil of the relay 79; is that correct?

A That is correct.

Q Then would you say that the flow of current from the amplifier through that relay had any part in actuating the signal?

A No, I would not say that, because the flow of current through the amplifier actuates only the relay. The relay, in turn, completes the current from the 110-volt line to the bell.

Q Then even though unless the flow of current from the amplifier takes place through the coil of the relay 79, there can be no actuation of the signal means, you still say then that the flow of amplifier current through the coil 79 plays no part in the actuation of the signal means?

A The flow of current through the amplifier?

Q From the amplifier.

A The flow of current from the amplifier actuates that relay and thereby controls the source of supply to the signal means, and that is its function, to control the source of supply to the signal.

Q Can the signal be actuated in the absence of a flow of current from the amplifier through the coil of the relay 79 by any means shown in Defendants' Exhibit D or in the patent in suit?

A Can it be actuated by any means?

MR. PARKER: Please read the question.

(The question was read)

A No, the signal is controlled by the actuation of the relay 79.

Q Have you said that the flow of current through the 110-volt line shown in Defendants' Exhibit D is the actuating means for the signal?

A Yes. I did not say it is the actuating means, but I said it is the current that actuates the signal.

Q What causes that current to flow?

A The closing of the switch on the relay 79.

Q Does the flow of current from the amplifier have any part in causing the current to flow and thereby actuate the signal?

A The flow of current from the amplifier closes the relay and thereby controls the source of supply to the signal.

Q Is it proper to say, then, that the flow of current from the amplifier through the coil 79 of the relay which controls the 110-volt circuit causes an actuation of the signal?

A No, the flow of current through the relay completes a circuit from the 110-volt line and thereby causes the current of the 110-volt line to actuate the signal.

Q What is the ultimate cause of the actuation of the signal?

A The ultimate cause?

Q The ultimate cause, what starts the chain?

A You mean the source, where it is started?

Q In other words, why does the signal get actuated?

A The beam of the light from the gun is projected to a photo-electric cell and starts up the system, which ultimately rings the bell.

Q When the cell is struck by a light flash, you have said that current then flows from the amplifier through the coil of the relay 79. Is it a proper statement to say that that flow of current from the amplifier through this coil 79 is an absolutely necessary pre-condition to the actuation of the signal means?

A Yes, it is necessary that the current flow from the amplifier through the relay 79 to complete the circuit from the 110-volt line in order to operate the signal.

Q Then unless that current does flow from the amplifier through that coil 79, the signal will not be actuated; is that correct?

A That is correct.

Q Referring to Figure 4 of the patent in suit, do you find in that figure any means for actuating the signal means independent of the flow of current through the relay shown at 79?

MR. THREEDY: If the Court please, may I respectfully request counsel to identify the signal means he is referring to in Figure 4 of the patent in suit. Identify it by reference character.

MR. PARKER: Signal means 83.

THE WITNESS: Will you read the question, please?

(The last two questions were read)

A The signal means is actuated by a flow of current through a line shown in heavy green on Defendants' Exhibit D.

MR. PARKER: I wonder if the witness could answer the question as it is put.

THE COURT: Read the question again.

(The questions were re-read)

MR. PARKER: Q I will clarify that question by saying, what I mean is do you find any means in the patent which will actuate the signal 83 or the electromagnet 69 in the event that current from the amplifier does not flow through the coil of the relay 79.

A The means for actuating the signal is there, which is the supply of 110 volts. This, of course, is controlled by the relay 79. The relay does not actuate the signal.

MR. PARKER: Will you read the question again?

You have not answered the question. I am asking you whether or not any means will actually move or operate the bell 83 or the electromagnet 69 in the event that current does not flow from the amplifier through the coil of the relay 79?

A The means for actuating the signal is there. Taking away that closing of the circuit by the relay 79 merely takes away the control for that means.

Q Well, assume that you have this machine set up with the wiring diagram of Defendants' Exhibit D and someone comes along and takes away relay 79, removes it from the machine, how would you then actuate the signal means 83 or the electromagnet 69?

A The signal means could not actuate if it did not have the relay 79 to control it.

Q Could not be actuated at all?

A No. It could if you had some means of closing circuit from the 110-volt line, but you haven't that because you have taken the control away.

Q You have taken the control away?

A Yes.

Q Am I correct in my understanding that you have said it is true, both of the circuit of the patent in suit as shown on Defendants' Exhibit D, and of the circuit of defendants as shown in Defendants' Exhibit C, that in both these circuits the result of a flash of light hitting the cell is to cause current from the amplifier to flow through the amplifier relay indicated in the lower right hand corner of Defendants' Exhibit D or the relay 79 indicated in Defendants' Exhibit D, and in the structure of the patent in suit and in the structure of defendant, it is equally true that the result of the flow of current from the amplifier is to close a relay, which, in turn, causes 110-volt current to flow through a circuit which actually operates the signal means 83 or the electromagnet 69 of Defendants' Exhibit D, or the part indicated as Signal in Defendants' Exhibit C or the two coils positioned above it; is that correct?

A That is correct, Mr. Parker.

Q Is it correct to say that in that respect the structure of defendant and the structure of the patent in suit are parallel?

A No, because they function differently.

Q I did not ask you about function. I asked a question framed on a series of results.

A Well, the result is parallel; yes. In both devices the aim is to direct a beam of light to a photoelectric cell and the result of that direction of the beam on the cell is an operation of a signal and the falling of a target.

Q That is true of both devices?

A That is true of both devices; yes.

MR. PARKER: Will you please read that last question back to the witness and I will ask him to say yes or no whether the statement in it is correct.

(The question was read as follows: "Is it correct to say that in that respect the structure of defendant and the structure of the patent in suit are parallel?")

A When you say "structure," Mr. Parker, you are going into the functional development, the operation of each part, and that is too general. I could not answer that yes or no.

MR. PARKER: I will save time by rephrasing the question.

Q Is it true, in both plaintiffs' structure and in defendants', that when a beam of light or a flash of light strikes the photoelectric cell on the target this causes, in each of these structures, a flow of current from the amplifier and that this flow of current from the amplifier causes a relay and that, disregarding the details of the intermediate circuit, the ultimate result in both structures of the flow of current from the amplifier is, firstly, the sounding of an audible signal; secondly, the fall of a target portion or drop; disregarding the intervening chain of activities, is that the ultimate result of both machines?

A Yes, that is correct.

Q And in both machines, that is to say, in the patent in suit and in defendants' structure, this ultimate result follows from the flow of current from the amplifier through the coil of a relay which closes the outside circuit of 110-volt current; is that correct?

A That is correct.

Q I notice in Defendants' Exhibit E a line 42' which runs from the plate of the tube of the amplifier shown at 80'. Do you find any such line or wire in the patent in suit?

A In the drawings of the patent in suit?

Q In the drawings of the patent in suit.

A Not in the drawings; no, sir.

Q Do you find it specifically described in the patent in suit?

A Not in the specifications; no.

Q Does defendant employ it?

A Defendant does not employ that wiring diagram.

Q Are you familiar with the file wrapper of the patent in suit?

A No, I am not, Mr. Parker. I have never seen the file wrapper.

Q You have not examined it at all?

A No, I have not.

Q You have not made any attempt to determine from the file wrapper how the patentee interpreted the words he employed?

MR. THREEDY: If the Court please, the witness said he had not seen the file wrapper and any questions based on that file wrapper would not be proper.

THE COURT: It would be improper at this point to ask any questions on the file wrapper.

MR. THREEDY: That is correct.

MR. PARKER: Q Referring to Defendants' Exhibit B and to Figure 3 of the patent in suit, I believe you testified that the trip rail 66 in the position shown in Figure 1 of Defendants' Exhibit B, is effective to hold the target portion 48 in upright position; is that correct?

A Yes, if it is leaning against the trip rail 66 it will hold that target in raised position.

Q I believe you testified that the result of the contact of a flash of light with a cell, the ultimate result, disregarding the circuits in between, is the energization of the electromagnet 69; am I correct?

A That is correct.

Q And when the electromagnet 69 is energized, I believe you testified that it cause the armature 69 to move in a clockwise direction?

A That is right.

Q When the armature does move in a clockwise direction, what effect, if any, does this have on the position of the target portion 48?

A The target 48 is moved into the position shown in Figure 2 by the trip rail 66 pushing against the depending arm 65 of the target, and the target then will fall into the position shown in Figure 3.

Q What will cause it to fall?

A It will fall by gravity from the position of Figure 2 to that of Figure 3.

Q Would you, or would you not say, then, that the movement of the trip rail 66 released the target portion 48 to permit it to fall by gravity?

A No, I would not say that. I gave you a definition of what I termed as a release and I could not say that the trip rail released the target.

Q It is not released?

A It does not hold it.

Q It is not released, but the target falls, the target portion falls?

A Yes, it falls.

Q But it is not released?

A It is urged; it is moved. When you move a thing you do not release it.

Q When it is in the position in which it is shown in Figure 1 of Defendants' Exhibit B, it is a fact is it not, that the target portion is held against falling?

A Yes, it is held against falling in a clockwise direction. The trip rail 66 could not hold it from falling in a counter-clockwise direction.

Q Referring to Defendants' Exhibit A, Figure 1, as I understand it, the portion 11 is held in raised or upright position by the rod or stem 18; is that correct?

A Yes, that is correct.

Q When the latch rod 18 is moved into lowered position, please state whether or not the target portion 11 is released?

A Yes, the target portion is released.

Q It is definitely released?

A It is.

Q I notice in Figure 1 of Defendants' Exhibit A the portion 11 is described as a target?

A That is right.

Q In your opinion, does that member 11 constitute the entire target?

A Yes.

Q That is the entire target?

A That is the target; yes.

Q You read from the patent in suit yesterday at several points a description which included the words "target portion" or "target portions 48" and in one of your answers you yourself employed that term, "target portion." What is the significance of the word "portion" as associated with the word "target"?

A It merely means that that particular part constitutes the target, that portion.

Q That portion?

A That portion constitutes the target.

Q That could not mean it was part of some larger target structure?

A Well, it is a part of the target structure. It is a portion of it, but it is the target portion of the target structure.

Q And you read from the patent in suit as a description given by the patentee of Figure 3, in which he stated that Figure 3 is a vertical transverse sectional view through the upper portion of the traveling target showing one of the movably mounted target portions. Is that a correct description of the structure shown in Figure 3?

A In the light of the patent, yes, it is a correct description.

Q Is that a correct description of this Figure 1 of Defendants' Exhibit B?

A Figure 1; yes.

Q In view of this employment in the patent of the term "target" to include a structure which includes the numbers 50, 48, 62 and so on, do you still feel that for the purpose of this suit the term "target" has to be limited to the member shown as 11 in Figure 1 of Defendants' Exhibit A?

A Yes, I do. I feel that the member marked 11 on Figure 1 of Defendants' Exhibit A is the target. The whole body shown in Figure 1 is a target structure showing all the parts that are necessary to put that target into operation. The target is a member 11 having an aperture in it.

Q Then am I correct in my understanding that you give the term target a different meaning than that which appears written into the patent?

A No, I do not think I do, Mr. Parker.

Q Well, you have said that the description given in the patent of Figure 3 is an accurate description and yet that describes the part shown in Figure 3 as the upper portion of a traveling target, but in Figure 3, and described by the patentee as the upper portion of the traveling target, you see not only the target portion 48, but the base 50 and the belts 51 for moving it and the photoelectric cell 62. Do you mean to take the position that the patentee was in error in employing the word "target" as he did?

A I believe that the patentee meant the target structure when he used the word "target."

Q Did he say target structure?

A No, he did not.

Q Then again in the body of the specification, in the upper part of the second column of page 1, you read into the record a sentence which included the words, "This target is of the traveling type and is provided with a plurality of target portions 48, which may simulate ducks." Do you feel that that is a correct description of the structure shown, for example, in Figure 3?

A It is a correct description of the structure shown; yes.

Q Is it correct to say, then, that simply reading the prima facie language of the patent and making no attempt to interpret the language, the patentee described as a target a general structure which included the base 50 and the cell 62 and the target portion 48?

MR. THREEDY: May I respectfully object to that auestion, if the Court please. That is not the province of this witness, it is the province of the Court to determine that from the testimony of the witness.

MR. PARKER: I am only asking him to repeat terms about which he testified yesterday.

MR. THREEDY: I do not quite understand the question that way, if the Court please.

THE COURT: He can state what his own notion is.

MR. THREEDY: I do not think the question calls for that. I would like to have the question read.

THE COURT: Kindly read the question.

(The question was read)

MR. PARKER: That is language that is on the face of the patent.

THE COURT: I will sustain the objection.

MR. PARKER: Q In your analysis of language from the claims and descriptive language read to you yesterday by Mr. Threedy, am I correct in understanding that you rigidly limit the use of the term "target" to the member shown at 11 in Defendants' Exhibit A?

A Yes, that is right.

Q And that you exclude the possibility that the term target might be a term broad enough to include the general target structure, as you call it, and thus include the portion 11; you have excluded that as a possibility in your interpretation of that word?

A Yes, I have.

Q Then it is not your idea that the term "target" is broad enough to include anything more than that portion 11; am I correct?

A That is correct. The target is the thing at which you shoot and not the structure which operates the target.

Q Then the operator shoots at the target portion 11?

A He shoots at the aperture in the target.

Q Supposing he hits the target portion itself so that the beam of light actually hits some part of the target 11. What happens?

A Nothing happens.

Q Supposing he hits the cell which you tell me is not a part of the target. What happens?

A The beam of light will have passed through the aperture in the target and impinged on the cell and ultimately cause the release of the target in Defendants' Exhibit A and cause a signal to actuate.

Q Then I am correct, am I not, in understanding you to say that when the operator aims at the general target structure it is his purpose to miss the target?

A I wouldn't say that.

Q You said that if he hit the target nothing happened, but that if he hit the cell something did happen.

A If he directed the beam of light through the aperture in the target he would hit the cell and something would happen.

Q When the flash of light goes through the aperture, does it hit the target itself?

A No, the flash does not hit the target.

Q Then am I correct in my statement that my understanding of what you say is that the operator tries to miss the target?

A Well, naturally, if he hits the target he won't direct the beam through the aperture in the target, and therefore he would not want to hit the plate itself.

Q Answer my question yes or no. Does he try to miss the target, or doesn't he?

A He tries to hit a part of the target.

Q What part of the target?

A The aperture in the target.

Q You mean the hole, the air, is part of the target?

A It is formed in the target and forms a part of the target.

Q When the rod 18 is moved into release position, you say that the target portion 11 is then released?

A That is right.

Q What causes the fall after it is released?

A Gravity.

Q Is it a correct statement which can be made both of defendants' structure as shown in Defendants' Exhibit A, and the patent in suit structure, as shown in Defendants' Exhibit B, that the target portions of both structures are normally in upright position?

A That is correct.

Q Is it correct to say that when a flash of light strikes the cell of either of the two machines, the ultimate result is that the target portion in each case moves into a lowered position such as is shown in Figure 3 of Defendants' Exhibit B and Figure 2 of Defendants' Exhibit A?

A That is correct.

Q Is it true of both these structures that as the result of the flash of light against the cell gravity is thereby allowed to move the target portions into this lowered position?

A Gravity plays a part in it; yes.

Q Am I correct in saying that your differentiation between these structures resides, primarily, in your interpretation of the term "release"?

A That is right.

Q How do you define the term "release" for the purpose of this controversy?

A I have already defined it.

Q Would you care to define it briefly? You will remember I have not had an opportunity to get a copy of your definition.

A To release a thing is to let go, or to liberate a thing so that it might move either of its own volition or the volition of some other force. To release it is to let go of it.

Q Just to summarize briefly the structure of the patent in suit as shown, for example, in Figure 4, and the structure of defendants' machine as shown in Defendants' Exhibits A and C, is it a fact that both structures show a traveling target?

A Yes, that is a fact.

Q And a photoelectric cell?

A And a photoelectric cell.

Q And a photoelectric amplifier?

A That is right.

Q And means operatively connecting the cell and the amplifier?

A Yes, that is right.

Q These connecting means including stationary contact means and traveling contact means engaging said stationary means and movable with the target?

A That is correct.

Q And a manually aimed gun for projecting a flash of light toward the target?

A Yes, that is right.

Q And signal means?

A It includes a signal means; yes.

Q And some means for actuating the signal means?

A It includes some means for actuating a signal means.

Q Is it true in both structures that the flow of current from the amplifier is a necessary prerequisite for actuating the signal means?

A It is one of the steps taken in actuating the signal means.

Q Is it a necessary prerequisite?

A It is in the normal operation of the machine.

Q In the normal operation of the machine of defendant and of the patent in suit, the signal means cannot be actuated unless current from the amplifier flows through a relay controlling the source of 110-volt current; is that correct?

A That is correct.

Q And both structures have a driving motor for the target; am I correct?

A That is correct.

Q In both instances a gun is employed having an electric light source for projecting a flash of light at the target; is that correct?

A No, that is not correct?

Q You mean that the light source in the gun does not project a flash of light at the target?

A May I explain my own opinion of it?

Q Go ahead.

A The gun of the patent in suit projects a flash of light at the target. The gun of the defendants' device has a beam of light which is of a constant nature and it employes a shutter for allowing a flash of light to pass through the barrel of the gun to be directed at the target.

Q Is the beam of light constantly directed at the target?

A No, it is not.

Q Well, is it a correct statement then, that in both machines the result of a trigger pull is the emission from the gun of a very brief flash of light?

A Yes, the result of the trigger pull is a flash of light.

Q Is it true that both structures have a shot-limit switch?

A Yes, they both have a shot-limit switch.

Q Is it true that in each structure the circuit for the motor includes and is controlled by the shot-limit switch?

A No, the device of the patent in suit employes a relay A, which controls the motor of the patent in suit, whereas in the device of the defendants they have a switch that is actuated by a cam on the shot-counter mechanism which operates or controls the flow of current to the motor.

Q Is it true that in each case the motor circuit is controlled by a shot-limit switch?

A Yes, it is necessary for the shot-limit switch to be closed in order for the relay A of the patent in suit to be in circuit.

Q That is true, then -- I beg pardon.

A And that, in turn, controls the flow of current to the motor.

Q Then it is true in both structures, that of the patent in suit and of defendant, that the flow of current to the motor is controlled by the shot-limit switch?

A Well, the current to the motor in the patent in suit does not go through the --

Q I didn't say that. I asked if it is controlled by it.

A It is controlled by it; yes.

Q Is it true that in both structures the shot-limit switch has electrical actuating means?

A Yes, it has.

Q Is it true in both structures that these electrical actuating means must be successively operated finally to open the shot-limit switch?

A Yes, that is correct.

Q Is it true in both structures that there is a circuit for the electrical actuating means which is controlled by the trigger of the gun or by its movement?

A Yes, controlled by a switch adjacent the trigger in the gun.

Q Is it true that the structure of defendants and the structure of the patent in suit comprises a movable target and means for moving the target?

A Yes, that is right.

Q Is it true that some portion which can be described as a drop, and which you have described as a target, is associated with this movable target structure in both structures?

MR. THREEDY: If the Court please, I do not seriously object to that question, but I think the introduction to the question says, "Is it possible."

MR. PARKER: That is an error or lapsus linguae. I should have said, "Is it true?"

THE COURT: I will sustain the objection.

MR. PARKER: Q Is it true that in the structure of the patent in suit and in defendants' structure, there is associatieted with what you call the target structure a target portion which is itself movable in relation to the target structure, the target structure as a whole being also movable in relation to its base; is that correct of both structures?

A Both structures have a target structure that is movable; yes.

Q Is it true that in the structure described in Figure 3 of the patent as the upper portion of the traveling target, showing one of the movably-mounted target portions, now referring to Figure 3, is it true that in the structure so described in the patent an aperture is shown in the member 48 which is aligned with the photoelectric cell 62 so that the cell is aligned with said aperture and is positioned to be struck by a flash of light accurately directed at the target?

A Yes, that is right.

Q Is it true that in the structure of Figure 1 of Defendants' Exhibit A there is an aperture in the target portion 11 and that the photocell 15 is so aligned with the aperture that it is in position to be struck by a flash of light accurately directed at the target?

A That is right.

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Q Is it true that in both structures there is an operative connection between the photoelectric cell and the member 66 in Defendants' Exhibit B and the member 18 in Defendants' Exhibit A, whereby when a flash of light impinges on the cell the result is that the portion 48 or 11 falls or is moved to lowered position?

A In the one device it falls. That is the device of Defendants' Exhibit A. In the device of Defendants' Exhibit B, the patent in suit, it is moved to a hit position. Otherwise, my answer is yes to the question.

Q Then you say to the proposition, do you, that in each case there is such an operative connection between the cell and the part 66 on the one hand, and the part 18 on the other, that the ultimate result is that the target portion 48 or 11 ends in a recumbent position?

A Yes, that is true.

Q Of both structures?

A Yes.

Q Is it true of both structures that there are shot-limiting means which operate in response to a trigger pull of the gun?

A Yes, each operation of the trigger pull on the gun will operate a switch, which in turn will operate the shot-counter mechanism to move the shot counter or shot-limiting means.

Q You said yesterday that there was not present -- I do not remember whether you said this of plaintiffs' patent in suit or defendants' structure, or both, but I understood you to say that there was no shot-limiting means associated with the gun. Do you remember that answer?

A The shot-limiting means is associated with the shot-counter mechanism and the light, in turn, is associated with the switch on the gun.

MR. THREEDY: Could we have the witness, if the Court please, identify each device he was speaking of? I do not think he properly did so. It would be a little vague to determine the exhibits.

THE COURT: You have heard what counsel said?

A Yes, I have.

MR. THREEDY: What were you referring to, Mr. Hansen, when you answered your last question?

MR. PARKER: Q Which device, plaintiffs' or defendants'?

A I was referring to the device of the patent in suit.

Q Would you say, then, that there is no association in the patent in suit between the shot-limiting means and the gun?

A Yes, I would say that.

Q There is no association whatsoever?

A The shot-limiting means is associated with the shot-counter mechanism, and this, in turn, is associated with the switch in the gun.

Q Then you would not say that this common association and this functioning together and the fact that the shot-limiting means is controlled by the trigger pull of the gun constituted an association?

A Well, in my opinion, I believe that association would have to mean some direct connection with the gun, some direct operation with the gun.

Q Would you care to define the term "associate"?

A Well, to associate, in my opinion, my definition would be that it would have to be linked to the gun by some structural means or in some manner linked to the gun.

Q You mean by some direct physical mechanical association?

A Yes.

Q Then, in effect, you are reading the term " mechanical" into the term "associate" or "association"?

A Well, yes.

Q I am trying to get at what you mean by that word.

A Yes.

Q If you were to give that word a somewhat more flexible meaning and were, for example, to interpret it as meaning cooperation or a cooperative relationship, then would you say that the shot-limiting means are associated with the gun?

A Well, it is necessary that the trigger on the gun be operated. I will grant you then that in that respect it is necessary that the trigger be operated before the shot-limiting means is actuated, and in that respect they are linked together, yes, and associated.

Q In reference to defendants' structure, what relationship, if any, is there between the shot-limiting means and the gun?

A In the defendants' structure a switch in the gun is operated by the trigger to operate the shot-counter mechanism and this operation of the shot-counter mechanism affects the movement of a cam which, in turn, controls the operation of the shot-limiting means.

Q In this respect, then, so far as the ultimate result is concerned, would you say that plaintiffs' structure of the patent in suit and defendants' structure are the same?

A Yes, the ultimate results are the same.

Q In connection with your testimony, you have employed the word "actuate." Would you care to define what you mean when you use the word "actuate"?

A To actuate is to put into motion, to urge, to impel.

Q Could it be described as causing to move? Do you actuate something when you cause it to move?

A Yes, when you actuate a thing you cause it to move.

Q When you cause it to move do you actuate it?

A Yes.

Q Do you interpret actuate and energize as synonymous?

A No, I think not, Mr. Parker.

THE COURT: I think I will have to ask you to suspend here until 2:00 o'clock.

WHEREUPON a recess was taken until
2:00 o'clock p.m. of the same day.

Tuesday, June 30, 1936

2:00 o'clock p.m.

Court convened pursuant to recess.

PRESENT: Messrs. Threedy
Parker

LESLIE M. HANSEN

resumed the stand for further cross-examination by Mr. Parker:

Q With reference to the structure of the patent in suit and defendants' structure, please state what takes place at the tenth trigger pull following the actuation of the coin switch.

A At the tenth trigger pull the shot-limiting means will be severed, that is, to disconnect a circuit, and the devices, both devices, will become inoperative, subject to further operation by a coin.

Q Is it correct to state that after the tenth trigger pull the targets of both of these structures cease moving?

A Yes, that is correct.

Q Is it a fact that the targets do not resume motion until another coin is put in the device?

A That is a fact.

Q That is true of both plaintiffs' machine and defendants'?

A Yes.

Q In relation to your interpretation of the term "actuate" I believe you defined actuate this morning to mean to set in motion. Am I correct?

A Yes, that is right.

Q Is it a correct use of the term "actuate" to say that the voice of one who speaks into a telephone at one station actuates the receiver in the other station?

MR. THREEDY: If the Court please, that question is objected to as going afield from anything in the direct-examination.

MR. PARKER: I am simply trying to find out whether this witness means by the term actuate to permit motion. It is of vital importance in this case.

THE COURT: He may state his conception of the term "actuate." He may answer.

A To my mind, when someone speaks into a mouthpiece of a telephone at one point the voice is transmitted by means of wires and mechanism and is reproduced on the receiver. I do not think I would say that the voice actuates the receiver. There are other elements in there that cause it to actuate, due to the voice being transmitted along the wires.

THE COURT: We are getting into a lot of dialectic refinements. I presume, unless there is something in the terms of the patent, the words will have to be given their ordinary meaning. I may be wrong about that, btut that is what I was thinking.

MR. PARKER: I asked the question because there is a considerable difference of opinion, apparently, between counsel as to what the meaning of the term "actuate" is.

MR. THREEDY: We have no objection to questions propounded on that ground if they are kept within the field of the issue before the Court.

MR. PARKER: The witnesshas answered the question.

THE COURT: Proceed.

MR. PARKER: Q In interpreting the term "actuate" then, do I understand you to stand by your definition of this morning, that to set in motion and to actuate are synonymous?

A To actuate and to set in motion is the same; yes.

MR. PARKER: That is all, your Honor.

THE COURT: Redirect-examination.

REDIRECT-EXAMINATION

By Mr. Threedy:

Q Mr. Hansen, you were interrogated this morning under cross-examination with reference to Defendants' Exhibit E. Advise the Court whether or not the signal of the device of claim 1 of the patent in suit corresponds in relation to the photoelectric cell amplifier in the same manner as the signal shown in Defendants' Exhibit E?

MR. PARKER: May it please the Court, may I have that question read? I did not get it.

THE COURT: Kindly read the question.

(The question was read)

A Yes, it does.

MR. THREEDY: Q Does the current from the photoelectric cell amplifier of the device defined in claim 1 of the patent in suit actuate the signal means 83 of the patent in suit?

A No, that current does not actuate the signal.

Q We are speaking now, Mr. Hansen, of the device defined in claim 1 of the patent in suit and I will ask you if the current from the photoelectric cell amplifier actuates the signal 83 and if not, state to the Court what instrumentality the current from the amplifier does actuate.

A The current from the amplifier does not actuate the signal of the patent in suit. It actuates a relay 79.

THE COURT: What does the relay 79 do?

A The relay 79 pulls up this armature and closes a switch which is in a circuit having its source of supply from the 110-volt line and it supplies current to the signal 83.

Q Then in that respect, Mr. Hansen, does the circuit illustrated in Defendants' Exhibit E exemplify the circuit of the signal and of the photoelectric cell amplifier of the device defined by claim 1 of the patent in suit?

A Yes, it defines a device explained in claim 1.

Q In the device of the patent in suit, what element indicates a hit when a light beam infringes upon the photoelectric cell, considering the other instrumentalities having been set into operation?

A A hit is indicated by the movement of the target into a lowered position, that is, away from its vertical position, and a bell is sounded, also indicating a hit. The action of both is simultaneous.

Q For the convenience of the Court, identify the target and the bell by reference characters taken from the patent in suit.

A In Figure 4 of the patent in suit the target 48 is moved into a lowered position, thus indicating a hit, and the relay 79 completes the circuit from the 110-volt source into the signal 83 to actuate the signal, thereby also indicating a hit.

Q Are either of those instrumentalities, namely, the target 48 or the signal 83, actuated by current from the photoelectric cell amplifier?

A No, they are both actuated by the current from the 110-volt line.

Q When the target moves into a position to indicate a hit, the target 48, in what direction with reference to a clock does the target move?

A You mean in Figure 4 of the patent in suit?

Q Yes.

A The target will move in a counter-clockwise direction.

Q When you were interrogated this morning on a summary of the device of the patent in suit and the device of each of defendants' Exhibits A, B and C, you were asked, among other things, if each of those devices included a signal, and you answered in the affirmative. Will you advise the Court if the signal means you referred to is actuated by current from the photoelectric cell amplifier?

A No. In neither of these devices is the signal actuated by the current from the amplifier.

Q You were asked on cross-examination whether or not the specification of the patent in suit referred to the element 48 as a target portion and upon giving a negative answer you were requested to read certain parts of the specification of the patent in suit wherein the term "target portion" appeared. Now, having on cross-examination referred to the specification of the patent in suit and having found the element 48 referred to as a target portion, advise the Court whether or not, in your opinion, the target portion 48 referred to by you is the target provided with an aperture, as recited in claim 1 of the patent in suit?

A I find no target provided with an aperture in claim 1.

Q Will you please read claim 1 to the Court?

A (Reading):

> "In a shooting gallery, a traveling target
> having a photoelectric cell, a photoelectric
> amplifier," --

MR. THREEDY: I beg pardon, if the Court please. I meant claims 10 and 11. That is my mistake.

THE COURT: All right.

A Yes. The target mentioned here is "the said target being provided with an aperture." Is that target 48?

MR. THREEDY: Q Mr. Hansen, you testified on cross-examination that when a flash of light impinges on the photoelectric cell of the patent in suit, the ultimate result is the falling of the target. Will you explain to the Court what causes the target portion 48 to fall when a flash of light impinges on the photocell?

A When a flash of light impinges on the photocell current is set up in the amplifier circuit to actuate a relay 79, closing a switch, which completes circuit from the 110-volt line into the electromagnet 69 and the transformer 84, and the electromagnet 69 will attract an armature 67 to cause the trip rail 66 to strike the depending arm of the target 48 and thereby urge the target into a position where it can fall by gravity into a hit position. The actuation of the transformer 84 will energize a coil of the signal 83 and cause the signal 83 to sound.

Q Is it a fact, Mr. Hansen, that when a flash of light impinges upon the photocell of defendants' device, the ultimate result is the falling of the target?

A Yes, that is a fact.

Q Mr. Hansen, advise the Court whether or not the means of defendants' device for accomplishing that ultimate result is functionally the same as the means of the patent in suit for accomplishing results of the target?

A No, the means of the defendants' device is functionally different. The electromagnet 85', being energized, causes a latch rod 18 to be withdrawn from the disk in the target structure and thereby the target is released to fall by gravity into a hit position.

Q You testified, in effect, in cross-examination that the operation of the defendants' gun and the operation of the gun of the patent in suit results in a flash of light from the gun. Advise the Court whether or not the flash of light from the defendants' gun is the result of trigger mechanism effecting completion of a circuit through the light source?

A No, it is not. The defendants' gun does not have a trigger mechanism for effecting completion of a source of supply to the light source in the gun.

Q Explain to the Court whether or not the flash of light from the gun of the patent in suit is the result of the trigger mechanism effecting completion of a circuit through the light source of the gun.

A Yes, it is.

Q Mr. Hansen, the ultimate result being a flash of light from both the defendants' gun and the gun of the patent in suit, advise the Court whether or not the means of the defendants' gun for accomplishing that result is functionally the same as the means of the gun of the patent in suit for accomplishing that result?

A No, they are not the same. They are functionally different.

Q Will you explain more in detail the basis for your answer?

A Because, in the gun of the patent in suit the trigger operates a switch which completes a circuit, which results in the illumination of the light 46 in the gun, whereas in the defendants' gun the light is constant and the operation of the trigger operates a shutter mechanism which allows a flash of light to project out of the barrel of the gun.

Q You testified on cross-examination that the ultimate result of a flash of light on the photocell of the device of the patent in suit was the actuation of the relay by the current from the photoelectric cell amplifier. With that in mind, advise the Court whether any other instrumentality of the device of the patent in suit is actuated by the current from the photoelectric cell amplifier.

A No, it is not. There is nothing else actuated other than the relay 79

Q Will you refer to Figure 4 of the patent in suit. If you were to break the conductors 42 and 41 leading to the transformer 84 and a light impinged on the cell 62 and the switch of the relay 79 was closed by the current from the amplifier 80, advise the Court whether or not the signal 83 would be actuated.

A No, the signal 83 would not be actuated. You would have broken the source of supply to the signal by taking away the conductors 42 and 41.

Q Mr. Hansen, on cross-examination you were asked whether or not the drawing of the patent in suit illustrated that element indicated at S on Defendants' Exhibit B.

MR. THREEDY: Has the Court the original copy of the patent in evidence? I would like to have the witness take the original of the exhibits.

THE COURT: I am not sure this is the one that was offered in evidence.

MR. THREEDY: It is marked Plaintiffs' Exhibit 12.

THE COURT: I do not think this is it. This is the only copy I have.

MR. THREEDY: I hand you a copy of the patent in suit marked Plaintiffs' Exhibit 12, and will ask you to look at the drawing of the patent and advise the Court whether or not in your opinion, you find an element which corresponds to the element S shown on Defendants' Exhibit B.

A Yes, I do find such an element in Figure 3 of the patent in suit.

Q Will you take your fountain pen, if you have one, and indicate that element by the reference character S.

A (Witness does as requested)

Q On cross-examination, Mr. Hansen, in reference to Defendants' Exhibit J, you were asked whether or not the depending arm of the target is engaged or bears against the trip rail shown in the model of this exhibit. I will ask you to refer to page 1 of the patent in suit and I will ask you to read to the Court the subject matter in line 34, following the comma appearing in the second column, down to the end of the sentence.

A Beginning with"said arm"?

Q Yes.

A (Reading):

> "said arm lies against or near a trip rail 66 which is carried by an arm 67 hingedly mounted on the base 56."

Q Now with that description in mind, advise the Court whether that description is an apt description of the depending arm and trip rail illustrated in the model Defendants' Exhibit J and the drawing Defendants' Exhibit B?

A Yes, that is an apt description of either one of the devices or both.

Q When the coin switch of the device of the patent in suit is operated, is there a circuit completed between the light bulb in the gun and a source of supply?

A When a coin switch 70 is operated?

Q That is right.

A No. The source of supply does not reach the light source in the gun on that operation.

Q When the coin switch of the defendants' device is operated is a circuit between the light bulb in the gun and a source of supply completed?

A Yes. When the coin switch on the defendants' device is operated a circuit is established to the light source in the gun.

Q What do those facts demonstrate to you?

A That the light source in the gun of the defendants' device is of a constant nature and that the light source in the gun of the patent in suit depends on an operation of a trigger switch.

Q Is the means employed in the defendants' device for completing a circuit between the light in the gun and the source of supply the same as the means of the device of the patent in suit for completing a circuit between the light in the gun and the source of supply?

A No, the means are different in these two devices.

Q Explain briefly the reason for your answer.

A Because, in the defendants' device the light is illuminated when a coin is deposited in the coin chute and the coin switch is operated to reset the shot-counter mechanism into a starting position. This operation allows current to flow directly to the light source in the gun and thereby illuminate the lamp in the gun. The light source in the gun of the patent in suit is only illuminated when the trigger switch in the gun is operated. The operation of the coin slide and the coin switch 70 of Figure 4 of the patent in suit does not affect the illumination of the lamp in the gun of the patent in suit.

MR. THREEDY: That is all, if the Court please.

THE COURT: Any recross-examination?

MR. PARKER: Yes, your Honor.

RECROSS-EXAMINATION
By Mr. Parker:

Q Referring to Defendants' Exhibit D, which illustrates 110-volt circuit, do I understand you correctly as having said that it is the 110-volt current or circuit which actuates the signal means 83?

A That is right, depending on the control of the switch on the relay 79.

Q Which is controlled by current from the amplifier?

A The relay switch, the relay 79, is energized by the current from the amplifier.

Q Then do I understand you to take the position as regards the language of claim 1 of the patent in suit, that it is not an apt description of the circuit shown in the patent in suit?

A That is my opinion.

Q Do I understand you correctly as saying that if plaintiff or defendant had employed the circuit as shown in Defendants' Exhibit E, in which plate current from the plate of the amplifier tube actually flows along the line 42', that such a structure would be within the terms of claim 1 of the patent in suit?

A Yes, that is right.

Q Then do I correctly understand you as taking the position that interposing some additional means, source of power or the like, or circuit, between the amplifier and the signal means, renders the term employed in claim 1 an inaccurate description; I mean, the term or phrase "signal means actuated by the current from said amplifier"?

THE WITNESS: I would like to have the question read. I have lost track or the thought there.

MR. PARKER: Read it, please.

(The question was read)

A Yes, that is right.

Q In other words, that term means that in the structure covered by that term, whatever it may be, it is necessary that the current from the amplifier actually serve as a source of supply?

A That is my way of reading that claim; yes.

Q And if you employ the amplifier current to control some outside source of supply, even though the result is the actuation of the signal as a result of the flow of the amplifier current, that the signal is not actuated by the current from the amplifier?

A That is my opinion; yes.

Q In other words, it is the final current which does the actuating?

A That is right.

Q Referring to Defendants' Exhibit E, which you said supports this phrase, please tell me what is indicated by the numeral 84'?

A A transformer.

Q Which coil of that transformer is the upper coil; is that the primary?

A Yes, the upper coil is the primary.

Q Am I correct in understanding that diagram as indicating that current from the plate passes through the primary coil of the transformer 84'?

A Yes, that is the way the diagram illustrates it.

Q What is the purpose of such a transformer?

A To transform the current that flows through the line shown in red.

Q Is there any conductive connection between the primary and secondary coils of that transformer?

A No, the current is merely transformed through a setup of plates and coils.

Q Is the voltage flowing through the secondary the same as the voltage flowing through the primary?

A No. That is the purpose of the transformer, to reduce or change the voltage.

Q I notice a coil surrounding what appears to be the strike member of the signal means 83'.

A That is right.

Q Is that coil in circuit with the primary or secondary coil of the transformer?

A It is in circuit with the secondary coil.

Q Is it in circuit with the amplifier output?

A Yes, it is. Of course, it is not directly hooked up with it, but it is in the secondary winding of a transformer.

Q Are the primary and secondary windings in circuit with each other; do they form part of a single circuit?

A No, it is a step down from one circuit to another.

Q Then there are two circuits?

A Yes.

Q And the coil that energizes the spring member of the signal on 83' is in a different circuit than the plate of the amplifier output?

A It is in a secondary circuit; yes.

Q That means a different circuit, doesn't it?

A Yes.

Q Referring to Defendants' Exhibit D, I notice a similar transformer, 84.

A That was my intention, to use the same implements as they are in the patent in suit.

Q Then the circuits are identical except for the change made in connection with tying up the plate?

A That is right.

Q Am I correct in saying that the commercial 110-volt current from some outside source flows through the primary coil of transformer 84 of Defendants' Exhibit D?

A That is right.

Q And that a current of a different voltage than flows through this secondary circuit which you have described as a separate circuit; is that correct?

A Yes, a step-down current operates.

Q Then the second circuit, this step-down circuit, is what actually energizes the strike member of the signal 83; am I right?

A Yes, that is right.

Q And the 110 volts commercial circuit does not flow through this secondary circuit that you have mentioned? You mean the 110-volt current?

A Not at 110 volts; no.

Q In other words, it is a separate circuit that is provided with a current in response to the flow of current through the primary coil; is that correct?

A That is right.

Q And still you say that the 110-volt current actuates the signal 83?

A It is a part of the 110-volt current.

Q How can it be a part of the 110-volt current if it is a current of a different voltage flowing in a differenc circuit?

A It has reduced the circuit. The use of the transformer is such as to merely take a certain amount of that 110-volt current for the purpose for which it is to be used.

Q Am I correct in my understanding that in order to sound this signal 83', which you say is in a circuit responding to the terms of the claim, you have interposed some additional means besides the simple 110-volt circuit; is that correct?

A In Defendants' Exhibit E?

Q No, in Defendants' Exhibit D. I think I have mixed my question on that. I will repeat it. You have testified that Defendants' Exhibit D responds to the terms of the claim we have been discussing, and the theory, if I understand you correctly, upon which you took that position was that the amplifier output does actuate the signal 83' and yet you have interposed between the signal 83' and the amplifier output an additional circuit; am I correct?

A I have not interposed that. I have merely used the hookup that was used in the patent in suit and in the light of the patent in suit -- if I can refer to the specification I should like to read some of the description.

Q Do you need that to answer the question? I do not want to harass you in any way, but are you not going afield from the question?

A I will answer the question and say there is an interposition there.

Q That is all that the question called for. Do you still feel that in order to actuate the signal 83 or 83', or the signal means shown in the patent in suit, or the signal means in defendants' structure, in accordance with the term of claim 1, "signal means actuated by the current from said amplifier," that the amplifier output actually has to serve as the source of power for the actuation; is that correct?

A Yes, I feel that way.

Q And you feel that the term "actuate" forces that limitation?

A Yes, the word "from" forces it. It is actuated by the current from the amplifier.

Q Is it not the current which flows through the coil 79 from the amplifier?

A That is right.

Q Is not the ultimate result of this passage through the coil 79 the actuation of the signal?

A No.

Q The ultimate result?

A Well, yes; the ultimate result is a ringing of the bell.

Q That is what I asked you. With rererence to Defendants' Exhibit B and Defendants' Exhibit A, have I understood you to testify that the target portion 11 of Figure 1 of defendants' Exhibit A and the target portion 48 of Figure of Defendants' Exhibit B, both fall by gravity to a lower position after, and only after, a hit is registered against the photoelectric cell?

A They fall, due to the operation of their respective structures by gravity into a hit position.

Q Do I understand you correctly as taking the position that the basic difference between these structures is an independent structure, as shown in Figure 1 of Defendants' Exhibit A, the portion 11 will fall by gravity immediately upon withdrawal of the latch rod 18, whereas in Figure 1 of Defendants' Exhibit B plaintiffs' target portion 48 will fall, but only after the member 66 pushes it over center; is that correct?

A That is correct.

Q And that that is the basic difference between those two structures?

A Yes.

Q But that they both fall in response to the impact of a light flash against the photoelectric cell?

A That is correct.

Q Is it correct that in both structures the result of the flash of light against the photoelectric cell is to energize an electric coil, which in turn, actuates or moves, let us say, which in turn moves or causes the motion of a member which is normally in contact with the target portion or some part connected to the target portion; is that correct?

A Yes, that is correct.

Q Therefore, the only difference is that whereas gravity holds the target portion 48 upright, owing to the connection or contact between the members 65 and 66, the target portion 11 of Figure 1 of Defendants' Exhibit A is forced to fall by gravity as soon as the latch rod 18 is withdrawn?

A That is right.

Q That is really the sole operative difference btween the two?

A They are functionally different in that respect; yes.

Q What is your definition of the term function or functional?

A Their mode of operation.

Q What is the function of that portion 11 in Figure 1 of Defendants' Exhibit A and 48 in Figure 1 of Defendants' Exhibit B, what is the function of that target portion?

A It is merely a target portion to shield the photoelectric cell and to provide an aperture. Also, it falls to indicate a hit.

Q In your last answer, is there any statement which is not true of both structures?

A No.

Q Then your last answer applies just as well to the defendants' machine as to the structure of the patent in suit?

A Yes, it applies to both.

Q You still feel that they are functionally different?

A Yes. You have not mentioned the trip rail 66 in that question. You must take it from that point to find the functional difference. The function of the trip rail 66 is one in which the target is urged to a position where it can fall by gravity, and the function of the latch rod 18 in Defendants' Exhibit A is one for releasing the target so it may fall into a hit position.

Q Would it be a correct statement to say that although the function of the target portion 48 is the same as the function of the target portion 11, there may be some difference in the function or mode of operation of the particular parts which connect these target portions to the photoelectric cell; is that a fair statement?

A Yes, that is fair.

Q Then would it be proper to say that although there is a somewhat different chain of connections between the photoelectric cell and the target portions, the target portions themselves perform the same functions?

A Yes, the target portions perform the same functions.

Q And the difference then, is only in the arrangement or details of the connection between the photoelectric cell and the target portion?

A That is right.

Q Is that correct?

A That is right.

Q You testified that as regards defendants' structure the bulb L shown, for example, in Defendants' Exhibit C, is illuminated when the trigger-controlled switch is closed and that it remains illuminated and directing a beam of light constantly during the operation of the gun; is that correct?

A No, that is not correct. If you read that question you will see you said that the trigger switch illuminated the light, and that is not correct.

Q I should have said the coin switch.

A The coin switch -- may I have that question as corrected?

(The record was read)

A The result of the operation of the coin switch is the setting up of the device into operation, and one of the results is the illumination of the light in the gun.

Q Is it correct to say that after the coin switch has been closed the light source L, shown in Defendants' Exhibit C, becomes illuminated and stays constantly illuminated until the operator has taken his tenth shot; is that correct?

A That is correct.

Q I understood you to say that a shutter is interposed between that light source and the end of the gun. What is the function of the shutter?

A The shutter is used to prevent the beam of light from passing through the barrel of the gun. Yes, that is the purpose of the shutter.

Q What function does this beam of light perform during the time in which the shutter prevents it from passing from the gun?

A This beam of light?

Q Yes.

A The beam of light merely strikes the shutter and is obstructed from passing through the barrel of the gun.

Q During this obstruction, does it perform any useful function in connection with the operation of the gun?

A Yes, it does.

Q The beam does?

A Well, the beam does not perform any function, but it's being constant, it is at its ultimate strength, and it is in a condition so that when it is liberated it will have strengh enough to impinge on a cell and actuate the photocell.

Q Does it perform any function until it is liberated?

A No, it does not.

Q Is it a fact that in defendants' structure, as shown in Defendants' Exhibit C, as well as in the structure of the patent in suit, the result of a trigger pull is to cause a flash of light to escape from the gun toward the target?

A The result is the emission of a flash of light from the gun; yes.

Q In that sense, is it proper to say that the two structures are similar in the sense that in both of them a trigger pull causes a flash of light and that in neither of them will any flash of light take place in the absence of a trigger pull; is that correct?

A They are similar in the light of their ultimate results, but structurally they are not similar.

Q Do you mean that they get the same results in a somewhat different way?

A In a different manner; yes.

Q What is the function of discharging a flash of light from defendants' gun?

A The discharge of a flash of light is to emulate a bullet coming from the barrel of the gun.

Q Has the discharge of a flash of light from plaintiff's gun the same function?

A Yes. The two guns emit a flash of light that has the same function.

MR. PARKER: That is all.

MR. THREEDY: Just one question, if the Court please.

REDIRECT-EXAMINATION
By Mr. Threedy:

Q Mr. Hansen, you testified on recross-examination that the ultimate result of the operation of the relay 79 of the patent in suit is to actuate the signal. Advise the Court whether or not the actuation of the signal is dependent upon the signal being connected in circuit with the main source of supply.

A Yes, it is. There must be some source of supply to the signal in order for it to operate.

Q In other words, if there is no connection between the signal and the main input, indicated at 110 volts, the actuation off the relay by the current from the photoelectric cell amplifier would have no effect upon the signal; is that correct?

A That is correct.

MR. THREEDY: That is all, if the Court please.

THE COURT: Take a recess for a few moments.

(A short recess was taken)

THE COURT: Call your witness.

MR. THREEDY: I take it that the witness has been excused. Is that right, if the Court please?

THE COURT: You are through with him?

MR. THREEDY: Yes, I am through with him.

THE COURT: Very well.

MR. THREEDY: At this time, for convenience' sake, I would like to introduce in evidence on behalf of the defendants, Defendants' Exhibit A, which is an illustration of the target structure of Defendants' machine; Defendants' Exhibit B, which is a drawing of that portion of the device of the patent illustrated in Figure 3 of the patent in suit; Defendants' Exhibit C, which is a partial circuit diagram of the defendants' structure, and Defendants' Exhibits D and E, which are circuit diagrams indicated as Signal Circuit No. 1 and Signal Circuit No. 2. These exhibits are offered in evidence for the purpose for which they have been here used and for such other value as the Court may attach to the same.

THE COURT: Any objection?

MR. PARKER: No objection, provided the plaintiffs are given copies.

MR. THREEDY: I advised Mr. Parker, in view of the fact that it is quite costly to have photostats made of these drawings, that I would be glad to let him make them if he will stand the cost of them for the time being.

MR. PARKER: There is a question whether or not the plaintiff is not entitled to copies.

THE COURT: I do not know of any control I have over that.

MR. THREEDY: No.

THE COURT: You may offer them in evidence for what they are worth.

MR. THREEDY: I think it is a matter of agreement and we will agree about that.

(The exhibits were so marked)

MR. THREEDY: I would like to offer in evidence on behalf of the defendant, Defendants' Exhibit H, which is a model of the device shown in Defendants' Exhibit A,and Defendants' Exhibit J, which exemplifies the device shown in Defendants' Exhibit B. for the purpose for which they have been here used and such other value as the Court may attach to the same.

THE COURT: They may be admitted.

(The exhibits were so marked)

MR. THREEDY: I will also introduce in evidence Defendants' Exhibit 34, which is a photostatic copy of Plaintiffs' Exhibit 34, and on which plaintiffs' witness Schnellhart outlined a certain circuit. I offer this in evidence on behalf of the defendant.

THE COURT: It may be admitted.

MR. PARKER: No objection.

(The exhibit was so marked)

MR. THREEDY: At this time I offer in evidence on behalf of defendant, a book of prior art patents, which have been marked Defendants' Exhibit L. I do that at this time because it will be convenient for the Court to refer to the several patents, and opposing counsel has been served with copies of each, and also given notice of them.

THE COURT: It may be admitted.

(The exhibit was so marked)

MR. THREEDY: Mr. Livingston, take the stand, please.

CALLARD LIVINGSTON,

called as a witness on behalf of the defendants, having been first duly sworn, testified as follows:

DIRECT-EXAMINATION
By Mr. Threedy:

Q State your name, address and occupation.

A Callard Livingston; 111 West Washington Street; patent attorney.

Q By whom are you employed?

A I am in the employ of Clarence E. Threedy, who is counsel for the defendant in this case.

Q State briefly your training and education which would enable you to qualify to testify as an expert in patent causes, particularly with reference to the explanation --

THE COURT: I understood you to say you are one of the counsel for the defendant?

MR. THREEDY: No.

A I? No, sir. Mr. Threedy is.

THE COURT: Oh, I understood you to say that you were.

MR. THREEDY: He is in the employ of my office, if the Court please.

Will you read that part of the question, please?

(The question as far as given was read as follows: "State briefly your training and education which would enable you to qualify to testify as an expert in patent causes, particularly with reference to the explanation --")

Q -- of the disclosures of patents of the United States, to enable you to make comparisons with the same.

A I have been engaged as a patent solicitor for over five years. I was formerly in the employ of the American Telephone and Telegraph Company, in the plant engineering department for about two years. In that connection I studied and handled amplifiers and amplifying circuits and photoelectric devices.

I am a graduate in law of Kent College; I attended Loyola Academy University of Chicago; studied mechanics and physics at Central Corporation School.

Q Are you registered in the United States Patent Office as a patent attorney?

A I am.

Q How long have you been registered as such?

A Something over two years.

Q Prior to your employment by me, with whom were you employed?

A I have been in business for myself as a patent solicitor and attorney and prior to that I was in the employ of Williams, Bradbury, McCaleb & Hinkle, patent attorneys.

Q Have you a copy of the patent in suit in your possession?

A I have.

Q Will you refer to the patent in suit and state whether or not you are familiar with the construction and operation of the device of that patent and the device defined by claims 1, 2, 10 and 11 in issue?

A I am.

Q I will ask you to look at Defendants' Exhibits F and G, marked for purposes of identification, and state whether or not you can identify the same.

A Yes, I can. Those exhibits or drawings were prepared under my direction for the purpose of explaining the prior art in this case.

Q On Defendants' Exhibits F and G for identification I notice the name Young, and therebelow the patent number 1,672,672. I notice Fey Patent No. 1,668,675. I notice Doucet Patent No. 1,451,294, Hoxie Patent No. 1,475,583, and McCullough Patent No. 561,124. Advise the Court whether or not those patents there listed and which I have mentioned are contained in the book of prior art patents marked Defendants' Exhibit L?

A They are.

Q Are you familiar with the said patents contained in this book of prior art patents marked Defendants' Exhibit L?

A Yes, with most of them.

Q Mr. Livingston, basing your answer on your familiarity and understanding of certain of the patents in defendants' book of prior art patents marked Defendants' Exhibit L, advise the Court whether or not, in view of such prior art patents, Griffith, the patentee named in the patent in suit, was the first to appreciate the use of a photoelectric cell in connection with a target or shooting gallery machine?

A No, he was not. There is a Swedish patent No. 37,410, to Schering, patented on the 18th of November, 1912, which shows a disclosure of the photoelectric cell of the selenium type used with a gun for marksmanship purposes.

MR. THREEDY: Has the Court found the patent referred to, which is the last patent in the book?

THE WITNESS: Yes, it is.

THE COURT: Yes, I have.

MR. THREEDY: Q I will ask you to refer to Patent No. 321,069, dated June 30, 1885, granted to C. W. Weiss, and explain the construction and operation of the device of that patent and state what bearing the disclosure of that patent has with reference to the disclosure of the patent in suit.

A The Weiss patent which you mention shows an electrical registering apparatus, which includes a photoelectric cell B in circuit with a relay F, the contacts of which are in circuit with the registering device K. That K is not indicated in Figure 1, but it is mentioned in the specification.

The operation of the device is such that light from a source C impinging upon the cell B will cause the relay F to operate and close an operating circuit for the registering or indicating device K.

The operation of this Weiss device is of interest in view of the patent in suit in that the light source C corresponds to the light gun 45 of Griffith. The photocell B corresponds to Griffith's cell 62. The relay F corresponds to the relay 79 in Griffith, and the indicating or registering device K corresponds to the signal 83 of Griffith, and functionally the two devices operate in the same manner, that is to say, light from the source C impinging on the cell B operates the relay F, which ultimately operates the indicating device K in Weiss, and this is substantially what happens in Griffith when light from the gun 45 impinges on the cell 62, passes through the amplifier 80 and actuates the relay 79

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to operate the signal 83.

Q Does the Weiss patent teach the mechanic skilled in the art the use of a relay in connection with a photoelectric cell and a light, the beam of which is to impinge upon the photoelectric cell to cause the relay to become energized?

A Yes, it does. This is an early patent and includes the elements and teaches as you have indicated.

Q Then a mechanic with knowledge of the Weiss disclosure would be taught the use of a light beam in connection with a photoelectric cell to energize a relay for the purpose of closing another circuit? Advise the Court whether that is correct or not.

A That is correct; yes.

Q Refer to Patent No. 1,475,583, dated November 27, 1923, granted to C. A. Hoxie, and explain the construction and operation of the device of that patent and state what bearing the disclosure of that patent has with reference to the disclosure of the patent in suit.

A The Hoxie device is a photoelectric mechanism which includes a rotating apertured disk 11 with aperture 17 therein and a photocell B positioned behind the disk relative to the apertures and a photoelectric amplifier C in circuit with the photocell B, a light source A and a lens 10.

The operation of the device is such that light from the source A passing through the lens 10 and through any one of the several apertures on the rotating disk will impinge upon the cell B and operate the amplifier C, and the result of that in the amplifier output at 25,26 may be utilized for any desired purpose.

The patent is of interest in view of the patent in suit in that the elements shown therein up to the amplifier output correspond to similar functional elements in the Griffith patent. For instance, Hoxie's light A and his lens 10 correspond to the light 46 and the lens 47 in the Griffith gun. The rotating disk with the apertures in it corresponds to the moving target 48 with the aperture 61 in the Griffith device, and Hoxie's photocell B corresponds to Griffith's cell 62. Hoxie's amplifier C corresponds to Griffith's amplifier 80.

I think I have already stated that the operation of the two devices up to the effect it has produced at the amplifier output 25,26 is the same, so that, for instance, if you had the signal 83 of Griffith connected to the Hoxie amplifier output, then the operation of the two devices would be substantially identical.

Q In your opinion, Mr. Livingston, based upon your understanding and familiarity with the disclosure of the Hoxie patent, does the Hoxie patent teach the mechanic skilled in the art the use of driving a target by means of a motor?

A It does. The rotating disk of Hoxie is driven by a motor 16.

Q In your opinion, could a mechanic, with knowledge of the disclosure of the Weiss patent heretofore referred to by you, incorporate the relay F of that patent in the amplifier circuit of the Hoxie patent without modifying the latter?

MR. PARKER: Read that question, please.

(The question was read)

MR. PARKER: The question is objected to. That is admitted to be the function of the Court, not the witness, to decide what a mechanic could or could not do.

THE COURT: He may answer, subject to the objection.

A My answer is yes. Very readily the relay F of Weiss could be connected with the amplifier output circuit of Hoxie, very simply.

MR. THREEDY: Q Explain to the Court where, in the amplifier circuit of the Hoxie patent, the relay F could be incorporated.

A Most easily it could be put in series with, let us say, the lead 25, assuming, well, put it this way, put it in series with the leads 25 and 26.

Q Mr. Livingston, when a beam of light from the source A is directed through any one of the apertures of the disk 11 on to the photocell B of the Hoxie patent, in your opinion, is the result the same as when a beam of light is directed from the source 46 through the aperture of the target 48 on to the photoelectric cell 62 of the patent in suit?

A Yes, it is. The light A in Hoxie in that respect would function the same as the light 46 in Griffith and the beam from the source A properly directed through one of the apertures 17 and the rotating disk or target 11 impinging upon the cell B would operate the amplifier C in Hoxie, and this is substantially what happens in the Griffith patent when light from the source 46 passes through the aperture 61 in target 48 and impinges upon the cell 62 to operate the amplifier 80.

Q State whether or not, in your opinion, the rotation of the disk 11 of the Hoxie patent breaks the beam of light from the source A of that patent into periodical flashes?

A Yes, it does. The separating wall portions between any two adcacent apertures will interrupt the beam as the disk rotates, so the result of that would be an intermittent flashing of light on the cell B.

Q Referring to Patent No. 1,523,149, dated January 13,1925, granted to one E. B. Wheeler, explain the construction and operation of the device of that patent and state what relation the disclosure of that patent has with reference to the disclosure of the patent in suit.

A The Wheeler patent shows a photoelectric mechanism which includes a photocell 17 connected with an amplifier 20, in the output of which is a relay 23. There are additional relays 26 and 27 controlled by the relay 23 for the purposes which I will explain hereafter.

Positioned in front of the photocell 17 is a pendulum 14 having an opaque window 13 at its lower extremity. The pendulum is adapted to be swung from side to side so that the window or opaque member 13 will pass before the cell 17.

The operation of the device is such that light from a source 12 directed through a lens 15 and a shutter 16 will impinge upon the cell 17 and actuate the latter and its associated amplifier 20 and correspondingly operate the relay 23 to close the circuit to energize a solenoid 33, which is positioned to impulse the pendulum 14.

The operation of this device, in view of the patent in suit, is very similar to the latter in that the light source 12 of Wheeler corresponds to the light 46 of Griffith, the lens 15 of Wheeler corresponds to Griffith lens 47.

The aperture 16 may be related to the gun barrel, the farther extremity of the gun barrel. The moving pendulum 14 corresponds to the moving target 48 in Griffith and the opaque window 13 in the lower part of Wheeler's pendulum may be related to the aperture 61 in Griffith, and Wheeler's photocell 17 and his amplifier 20 and relay 23 correspond, respectively, to the photocell 62, the amplifier 80 and the relay 79 in Griffith.

In addition, the impulsing solenoid 33 of Wheeler may be said to correspond to the target-releasing mechanism 69 of the Griffith patent in so far as the actuation of this solenoid 33 or the operating mechanism 69 produces an effect on the moving target.

Q In your opinion, Mr. Livingston, based upon your knowledge and understanding of the disclosure of the Wheeler patent, is a mechanic skilled in the art taught by that patent the use of a light source, a moving target with an aperture, to the rear of which is a photocell upon which a beam of light from the source is adapted to impinge, and which cell is incorporated in an amplifier circuit, and which amplifier circuit actuates a relay?

MR. PARKER: May it please the Court, that question is objected to. The patent should speak for itself on that.

THE COURT: He may answer, subject to the objection.

A That is substantially true, except that I neglected to mention in describing Wheeler, that the window 13 is opaque so that when it is positioned in the path 11 of light from the source 12 that light is shut off from the photocell 17, which is the reverse of what happens in Griffith, although the result is the same. Except for that slight difference, the answer to your question is yes, if I understood it correctly, and the elements that you mentioned are all disclosed in the Wheeler patent.

THE COURT: The object of this Wheeler patent is to shut off the impulse, is it not, rather than to afford a means by which the impulse may go to 17?

A Yes, it is to affect it momentarily rather than to shut it off.

THE COURT: It is for the purpose of interrupting?

A Yes, sir.

MR. THREEDY: Q Will you now refer to Patent No. 1,672,672, dated June 5, 1928, granted to C. J. Young, and explain to the Court the construction and operation of the device of that patent, and state what bearing the disclosure of that patent has with reference to the disclosure of the patent in suit.

A The Young patent shows a photoelectric device which includes a photocell 8 in a housing 1 and positioned behind a rotating disk with an aperture 3 in it. The disk is identified as 2. The photocell 8 has an amplifier which I will call 16,17 and an indicating device 13 connected in the putput of the amplifier. The disk 2 is driven by a motor 5.

The operation of the device is such that light from either of two sources 9 and 10, directed through the aperture 3 in the rotating disk 2 will impinge upon the photocell 8, operate the amplifier 16,17 and the indicating device 13.

The bearing of this patent on the patent in suit lies in the fact that Young shows the corresponding elements, or rather elements which correspond to those shown in the Griffith patent. The light source 10 in Young, for instance, corresponds to Griffith's light 46. The rotating disk 2 with the aperture 3 in it, corresponds to the moving target 48 with the aperture 61 in Griffith, and Young's photocell 8 corresponds to Griffith's cell 62. Young's amplifier 16,17 corresponds to Griffith's amplifier 80, and the indicating or signal device 13 in Young's corresponds to the signal 83 in Griffith.

In either case, light from either of the two sources passing through the aperture in the moving member or target will affect the photocells and thereafter the amplifiers and ultimately result in an inidication on the device 13 in Young or the signal 83 in Griffith.

Q What is the function of the element 5 of the Young patent?

A I believe I referred to that as a driving motor for the rotating disk 2.

Q Explain to the Court what happens when the aperture 3 of the disk 2 is in registration with either of the apertures 6 and 7 of the Young patent in question.

A Well, where the aperture 3 is in register with the aperture 7 the light from the source 10 will be directed upon the photocell 8 and thereafter the sequence of events I have just outlined will happen, whereas if the aperture 3 is positioned before the aperture 6, light from the source 9 will affect the cell and the amplifier in the manner set forth.

Q When these apertures 3 and 7 or 6, are in registration with respect to each other, the light beam from the sources 9 or 10 impinges upon the cell 8 of the Young patent, explain to the Court what happens.

A Did I understand you to say from either of the sources 9 or 10?

Q Yes, that is correct.

A The photocell 8 affects the input circuit of the amplifier circuit 16,17, which correspondingly affects the output circuit of that amplifier and causes a current change in the winding 14 of the indicator 13 and the registration or indication of that change by the pointer 15.

Q Is the instrument 13 on the output side of the amplifier of the Young device?

A It is. The instrument 13 has another winding I do not think I have mentioned. That winding is connected across the means which supplies the motor 5. The motor 5 is a synchronous motor and the winding 12 has a useful purpose in providing a special field for the moving mechanism of the indicator 13.

Q Could a mechanic, Mr. Livingston, with knowledge of the disclosure of the Weiss patent and with knowledge of the disclosure of the Young patent, take the relay F of the Weiss patent and connect it with the leads 11 of the device of the Young patent without the necessity of modifying that device?

MR. PARKER: That question is objected to. The patent should speak for itself.

THE COURT: He may answer, subject to the objection.

A I do not know whether you intended to apply the relay F of Weiss to the leads 11. That could very readily be done, but --

MR. THREEDY: My question there, if the Court please, was in error on the leads 11. It is leads leading from the output of the amplifier this side of the instrument 13.

A Well, the answer is the same. The relay F of Weiss could very readily be connected in the output of the amplifier 16,17 and the leads thereof going to the winding 14. That could be done, for instance, by simply connecting the two terminals of the relay winding in series with either of the two leads connected to the winding 14 in Young.

Q Would you say that this description is an apt description of the disclosure of the Young patent:

> "A traveling target, a photoelectric cell, a photoelectric amplifier, signal means actuated by current from the amplifier when the cell is struck by a flash of light, and means for aiming a light flash toward a target"?

A Yes, that description describes the Young device exactly.

Q Will you give a reason for your answer, please?

A Well, light from the source 10, for instance, could be aimed at the rotating disk 2 and an aperture 3 therein so as to fall upon the cell 8, operate the latter to operate its amplifier 16,17 and cause an indication in the indicator 13 connected to the amplifier.

Q Does the Young patent in question disclose a photoelectric amplifier and a photocell operatively connected together by means including stationary contact means and a traveling contact means?

A No, it does not. Those stationary contact means could very readily be applied if they were necessary or desired.

Q Now refer to Patent No. 1,490,272, dated April 15, 1924, granted to H. M. Hickam, and explain the construction and operation of the device of that patent and state what bearing the device of that patent has with reference to the disclosure of the patent in suit.

A The Hickam patent shows a light gun having a light source 7 and a lens 10 in the barrel and a switch means 2 and 21 operable by the hammer of the gun upon the pulling of the trigger so as to project a beam of light from the gun for marksmanship purposes.

The patent is of interest in view of the patent in suit in that the Hickam gun corresponds to the light gun 45 of Griffith and could be used in place of the latter.

Q Advise the Court whether or not the operation of the trigger 12 of the Hickam patent effects completion of a circuit between the light source 7 and a source of supply indicated at 6?

A Yes, it does. When the trigger 12 is pulled the hammer 13 is released and closes the circuit with both of the contacts. 20 and 21. The result of that is to illuminate the light 7 and project light through the gun barrel and the lens therein.

Q Refer to Patent No. 1,668,675, granted to one Fey, March 8, 1928, and explain to the Court the construction and operation of the device of that patent and state what bearing the disclosure of that patent has with reference to the disclosure of the patent in suit.

A I think I understood you to say March 8th. The one I have considered says May 8th.

MR. THREEDY: Yes, May 8th is correct.

A Well, the Fey patent shows an electric target apparatus. It includes an electric gun 1, a trigger 2 for operating a circuit-closing hammer 3.

That latter statement is not quite correct. The hammer itself is not a circuit closing member, but it functions ultimately to close the circuit.

Contact means operative with the gun, those means being indicated at 8 and 9, for completing circuit with the target operating mechanism.

The target mechanism of Fey includes targets mounted on an endless belt which move before the vision of the marksman, and in the operation of the device, by properly aiming the gun and pulling the trigger, a circuit will be closed to one of the target operating magnets 19 in Figure 2 or 31 in

Figure 6, through the fixed moving contacts 26, 27, 29 and 29'. The latter is shown in Figure 6. So that if the aim is correct the circuit which I have mentioned as being closed to one of these target operating members will cause a target member 12 to be released to indicate a hit.

The bearing of this patent on the patent in suit is of interest, particularly in the target mechamism. It shows a moving target with individual targets in the shape of ducks indicated at 12 in Fey, which correspond to the targets 48 of Griffith.

The form of the target shown in Figure 6 in Fey, particularly includes fixed and moving contacts and an electro-magnetic means for operating the target to indicate a hit.

Q In your opinion, Mr. Livingston, could a mechanic skilled in the art, having a knowledge of the Young patent to which you have heretofore referred, and the disclosure of Figure 6 of the Fey patent, which you are now discussing, combine the disclosures of those two patents and produce a device having the instrumentalities or device of the claim of the patent in suit?

MR. PARKER: This question is objected to. It is submitted that these patents have to speak for themselves. They show on their face whether or not such a combination could be made.

THE COURT: He may answer, subject to the objection.

A Yes, that can readily be done. I would like to refer, if I may, to the drawings I had prepared for the purpose of explaining that.

In Defendants' Exhibit F we have the disclosure of the Young patent referred to combined with the disclosure of Figure 6 of the Fey patent which I have just mentioned. In doing this, Young has not been modified, nor has Fey. We have simply connected leads from the fixed contacts 26 and 27 across the output leads of Young's amplifier 16,17. The result of this, operatively, is such that light from either of these sources 9 and 10 passing through the aperture 3 in the rotating disk or target 2 will impinge upon the photocell 8, causing the operation of this amplifier 16,17 and effecting a connection in this indicator 13, and also operating this electromagnetic target, operating member 31 to pull up this latching armature 31' and causing this target to fall into a hit position.

Q Does the drawing Defendants' Exhibit F which you are referring to include a signal means actuated by the current from the photoelectric cell amplifier?

A Yes, it does. This signal means 13, and particularly this winding 14, is in circuit with the amplifier 16 and 17, and current from this amplifier passing through this winding 14 operates that signal means 13.

Q Does the device illustrated in Defendants' Exhibit F include stationary and movable contact members?

A Yes, it does. The stationary contact members are 26 and 27 and the moving contact members are 29 and 29'. They are on the target structure.

Q When the beam of light from the source of either 9 or 10 impinges upon the photoelecteic cell of Defendants' Exhibit F, is a signal indicated?

A Yes. Light hitting that cell 8 will operate the amplifier and the amplifier, in turn, will operate this signal means 13.

Q Is that signal means 13 actuated by current from the photoelectric cell amplifier of Defendants' Exhibit F?

A It is. The current in the photocell amplifier passes through the winding 14 and causes the movement of the pointer 15.

Q Advise the Court whether or not the target of Figure 6 of the Fey patent and as shown in Defendants' Exhibit F is a moving target?

A Yes, it is. These targets, individual targets 12, are supported on an endless belt, as I think I described, which is motor-driven and the targets move before the vision of the marksman.

Q In your opinion is the disk 2 a target?

A Yes, it is.

Q Shown in Defendants' Exhibit F?

A Yes, either the disk 2 or the member 12 can be considered a target.

Q In your opinion, Mr. Livingston, is there any signififance between the structural instrumentalities of Figure 6 of Defendants' Exhibit F and the target mechanism of defendants' device?

A Well, yes. I would say they are almost identical in that you have a momentary releasing means 31 and a latch arm 31' which latchingly engages the target 12. When the electromagnet 31 is energized that armature is pulled back and unlatches the target 12 and the target will fall over under the effect of gravity to indicate a hit. That is what happens in the defendants' structure. The latch rod 18, I believe, in Defendants' Exhibit B, I do not have it here; yes, it is the latch rod 18, in Exhibit A.

Q Defendants' Exhibit A.

A It operates in the manner of the latch rod 31' of Fey, Figure 6.

Q In view of Figure 6 of the Fey patent and from your understanding of the construction and operation of the target mechanism of the defendants' device as shown in Defendants' Exhibit A, would you say that the defendant has followed the teaching of the prior art rather than that of the patent in suit?

A Oh, yes, the teaching of Fey, particularly, as shown in Figure 6, has been followed in defendants' target structure, as shown in Defendants' Exhibit A, as I have explained.

Q Will you refer to Patent No. 561,124, dated June 2, 1896, granted to J. L. McCullough, and explain the construction and operation of the device of that patent and state what bearing the disclosure of that patent has with reference to the disclosure of the patent in suit?

A McCullough shows an electric target mechanism in which he has a gun A and a hammer switch mechanism 15, which is in circuit with fixed and moving contacts 6 and 8, the segments of the fixed contacts being connected to a plurality of electro-magnetic target members such as 10. He also includes a signal device 35 and a shot counter or register R.

The operation of the device, - I am referring to Figure 1 now, - is such that by properly aiming the gun A at any of the several targets, such as 20 or 22, and pulling the trigger a circuit will have been established by properly aiming the gun with the target operating magnet corresponding with that target, and the energization of the magnet will cause the target to be released and fall into a hit position. At the same time the signal means 35 will operate and the shot counter R will step up to indicate one shot.

This device is of interest in connection with the Griffith patent in that it shows a signal means and a shot-counting means and a target electrically releasable to indicate a hit when the gun is properly aimed.

Q Refer to Figure 1 of the McCullough patent and advise the Court what the element is that is indicated by the reference character 12.

A I do not find it.

Q On Figure 1.

A Yes, I will look at Figure 1. Is it in the right or left?

Q Left, just below the upper target, between the two targets, reference character 12.

A I do not find it.

THE COURT: Did you say 12, Mr. Threedy?

MR. THREEDY: Yes; 12

THE WITNESS: Oh, yes. Yes, I see it.

A That is the signal means also in the form of a bell and that bell is in circuit with one of the target operating electromagnets, so when that target, that particular target, is struck and the circuit closed as explained, the bell will ring to indicate a hit.

Q Does the disclosure of the McCullough patent illustrate a shot-limit switch?

A No, it does not.

Q Does the disclosure of the McCullough patent illustrate a photoelectric cell?

A It does not.

Q Does the McCullough device include a target and electrically actuated or controlled means for releasably holding the target in raised position?

A Yes, it does.

Q Explain your answer to the Court and point out the structure if found, indicating by the reference numerals.

A Well, for example, the target 20 in Figure 1 includes a target portion 22 which is held in a raised position by a member 21. This member 21 may be acted by the electromagnet, which is not indicated but is positioned immediately behind it, to unlatch or release the target portion 22 to fall into a hit position when the gun is properly aimed.

That unlatching or falling into the hit position is accomplished through the electromagnetic means that I referred

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to, not indicated by reference character.

Q Refer to the McCullough patent and read to the Court the subject matter appearing on page 3, beginning with line 38, and ending with line 50.

A Reading from the patent at page 3, beginning with line 38, McCullough says:

> "The register R may be any kind of electrically operated counting device. That shown comprises a casing or cabinet in which is the electromagnet 39, which, when excited, attracts an armature 40, which carries a spring-hook pawl 41, engaging the teeth of a ratchet wheel 42, connected through a train with an index or hand 43, arranged to traverse a dial. Every time the gun is fired the circuit is closed through the register magnet 39, and the pawl advances the ratchet wheel one tooth; also, every time the gun is fired the annunciator 35 is sounded."

Q Now refer to the device of the patent in suit, does the device of that patent, like the McCullough patent, include a register such that every time the gun is fired the register is advanced?

THE WITNESS: Will you read that question, please?

(The question was read)

A In the patent in suit there is an element which corresponds to this in the form of the shot counter 73. That includes an element, an arm, a contact arm 75, which is advanced by a pawl and ratchet means electromagnetically driven each time the trigger is pulled.

Q Is the subject matter which you have just read from page 3 of the McCullough patent an apt description of the function of the shot counter of the patent in suit which you have just referred to?

A Yes, it is.

Q Now refer to Patent No. 1,451,294, granted to Doucet on April 10, 1923, on a Fire Arm, and explain the construction and operation of the device of that patent, and state what bearing the disclosure of that patent has with reference to the photoelectric cell of the patent in suit.

A The Doucet patent shows a light gun having in a barrel 1 a plurality of lenses 11 and 12 and an aperture member G, a light bulb 2 and a contact member 17, which is operable in connection with a source of energy upon the pulling of the trigger B to cause a beam of light to be projected through the gun.

This gun, while it corresponds to the light gun 45 of Griffith, it operates upon the pulling of the trigger to release a beam of light in the manner that the Griffith gun does upon pulling his trigger, and the Doucet gun could be readily used in place of the Griffith gun 45, in the operation of the Griffith target mechanism.

THE COURT: Would you like to suspend at this point? It is now 4:35. Be back at 10:30 in the morning.

WHEREUPON an adjournment was taken until Wednesday, July 1, 1936, at 10:30 a. m.